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10/580,776	05/26/2006	Guo Liang Yang	8948P001	7128

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EXAMINER	
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2169	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,776	YANG ET AL.	
	Examiner	Art Unit	
	CECILE VO	2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6 and 8-37* is/are pending in the application.

4a) Of the above claim(s) *5 and 7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-4,6 and 8-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Applicants' amendment received on 09/23/2010.

Claim Status

2. Claims 1, 21 and 37 are amended. Claims 5 and 7 are canceled. Claims 1-4, 6 and 8-37 are currently presenting for examination, with claims 1, 21 and 37 being independent.

3. This action has been made **FINAL**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimura, Patent Number 7,374,077, in view of Smirniotopoulos et al, Patent Number US 7,080,098 (hereinafter referred to as "Smirniotopoulos") and further in view of Lei et al, Publication Number US 2004/0139043 (hereinafter referred to as" Lei").

Regarding claim 1, Shimura discloses a method for retrieving medical images from various sources and in different formats, to enable the creation of teaching files and research datasets, for the building of a personal medical image library (see abstract), the method comprising:

(a) directly retrieving a plurality of medical images from various sources (e.g. the image input receives input from a plurality of client terminals (as *sources*) connected to the image input means by way of a network, col. 2, lines 49-52);

(b) storing the plurality of medical images in a database (e.g. image database which stores a number of pieces of image data representing a number of images, col. 1, line 67 through col. 2, lines 1-2);

(c) generating a database record for the teaching files and research datasets (e.g. case database 20 in Figure 1, comprises an image database 20a which stores a number of pieces of image data representing a number of images and a diagnostic database 20b which stores pieces of diagnostic data related to the pieces of image data stored in the image database 20a, col. 5, lines 33-37);

(d) generating the teaching files and research datasets file (e.g. to arrange the image database (as *research data file*) to store a number of pieces of image data together with position information representing the position of the object of the image represented by the image data, col. 3, lines 16-19; and the “feature value” is an index on the basis of the degree of malignancy of a detected abnormal shadow, col. 2, lines 31-33);

(e) saving the teaching files and research datasets into the database (col. 5, lines 33-37); and

(f) generating at least one index of the teaching files and research datasets (e.g. the "feature value" is an index on the basis of the degree of malignancy of a detected abnormal shadow, col. 2, lines 31-33).

Shimura does not explicitly disclose the following:

(g) automatically anonymizing patient identification data when the at least one medical image is retrieved from the various sources, wherein the patient identification data comprises patient sensitive information that is not revealed publicly.

Smirniotopoulos teaches: automatically anonymizing patient identification data when the at least one medical image is retrieved from the various sources (e.g. multiple levels of security and access control schemes may be used where more sensitive information is being stored. Thus, multiple levels of privileges may be supported, such as for an author of a file, a reviewer, an editor, a guest, and system administrator. The level of privileges may also vary based upon the state of the file and the particular information being manipulated. When using multi-level access control, user could be restricted to visitor status with respect to portions of the file. The system may be designed to mask or options within a given process for which a user does not have sufficient privileges, col. 3, lines 37-67 through col. 4, lines 1-7), wherein the patient identification data comprises patient sensitive information that is not revealed publicly (e.g. even though a person acted as both author and editor of a given file, it is possible that after approval he could be restricted to visitor status with respect to certain file

access, and may lack even these privileges with respect to portions of the file, such as sensitive patient information, col. 3, lines 55-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura to include a medical image storage and retrieval system as shown by Smirniotopoulos in order to be balanced against the complexity of administering multilevel access (Smirniotopoulos: col. 3, lines 61-63).

Shimura and Smirniotopoulos do not explicitly disclose: wherein the automatic anonymizing of patient identification data includes replacing each item of the patient identification data with an anonymization code; and

(h) securely storing a relationship between the anonymization code and the patient identification data in a table in the database.

Lei teaches: wherein the automatic anonymizing of patient identification data includes replacing each item of the patient identification data with an anonymization code (e.g. the masking routine obtains masking value from attribute restriction metadata, replaces the data from the attribute with the masking value, integer zero. The modified data is stored in masked result set. The masked result set is then provided to user, §0074, lines 7-9 thru §0075. Wherein, the same data in the masked result set will be returned if the same restricted attributes is requested, §0076); and

(h) securely storing a relationship between the anonymization code and the patient identification data in a table in the database (e.g. The modified data is stored in masked result set, §0074, line 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura and a medical image storage and retrieval system disclosed by Smirniotopoulos to include a masking value as shown by Lei in order to provide a mechanism for implementing access control policies that do not suffer the all-or-nothing limitation of existing row-level access-control policy approaches, Lei: §0013).

Regarding claim 2, Shimura discloses the method further including a searching mechanism for searching the teaching files and research datasets (e.g. searching means 30 which searches the case database and judges image data, col. 5, lines 22-23 and lines 27-28)

Regarding claim 3, Shimura further discloses, the medical images are from at least one discipline selected from the group consisting of radiology, nuclear medicine, dermatology, pathology, ophthalmology, cardiology, neurology, endoscopy, angiography, biomedicine, ECG, EEG, and EMG (col. 5, lines 60-67 through col. 6, lines 1-2).

Regarding claim 4, Shimura further discloses, the method is in accordance with MIRC schema (e.g. image search system, Figure 1).

Shimura does not disclose anonymizing patient sensitive information regarding claims 6 and 8-9.

Smirniotopoulos teaches:

The patient identification data is able to be revealed to a generator of the teaching files and research datasets (e.g. the system may be designed to mask the processes or options within a given process, for which a user does not have sufficient privileges, col. 4, lines 5-7).

the anonymization code includes a prefix, a randomly generated number and a type (col. 4, lines 5-7).

the prefix is a short string of characters representing the generator of the sensitive information; and the type represents nature of the sensitive information (e.g. Figure 7 illustrates an alternative implementation in which conditional information like codes and non-private patient information are displayed for rapid browsing of the retuned results, col. 8, lines 66-67 through col. 9, lines 1-2).

Regarding claim 10, Smirniotopoulos further discloses, a check is first performed to determine if the item of sensitive information has previously been anonymized and the anonymization code previously generated; and, if yes, retrieving and using the previously generated anonymization code (col. 6, lines 53-62),

Regarding claim 11, Smirniotopoulos further discloses, the sensitive information includes one or more items selected from the group consisting of: patient's name,

patient ID, other patient's names, other patient IDs, patient's birth name, patient's address, patient's telephone numbers, patient's mother's birth name, region of residence, country of residence, military rank, branch of service, patient comments, additional patient history, referring physician's name, referring physician's address , referring physician's telephone numbers, and all other person names (e.g. patient's file, col. 3, lines 59-61).

Regarding claim 12, Smirniotopoulos further discloses, wherein, in step (c), ACR codes are entered as a result of system prompts (col. 4, lines 41-44).

Regarding claim 13, Smirniotopoulos further discloses, the ACR codes are used for the at least one index of the teaching files (col. 5, lines 60-67- col. 6, lines 1-2).

Regarding claim 14, Smirniotopoulos further discloses, indexing is by at least one selected from the group consisting of: title, abstract, keywords, authors, affiliations, contacts, patient information, radiological codes, image format, image compression status, image modality, anatomic location, and ACR codes (col. 6, lines 10-20).

Regarding claim 15, Smirniotopoulos further discloses, for internal searching, patient sensitive information is revealed, and for external searching patient sensitive information is anonymized (col. 7, lines 14-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura to include a medical image storage and retrieval system as shown by Smirniotopoulos in order to be balanced against the complexity of administering multilevel access (Smirniotopoulos: col. 3, lines 61-63).

Regarding claim 16, Shimura discloses, after each medical image is retrieved in step (a) it can be viewed before being stored (col. 10, lines 37-43).

Regarding claim 17, Shimura further discloses, all medical images are kept in their original format once retrieved (col. 2, lines 57-59).

Regarding claim 18, Shimura further discloses the formats include at least one selected from the group consisting of: AVW, HDR/IMG (Analyze format version 8.0 and 7.5), BMP (Windows Bitmap format), DICOM (Digital Imaging and Communications in Medicine), GIF, JPEG, JPEG 2000, PNG, PNM, PPG, RGB, RGBA, SGI, TIFF, AVW, HDR/IMG (Analyze format version 8.0 and 7.5), Animated GIF, MIRA, Muti-sliced TIFF, MOV, AVI, MP3, RM, and Waveform for ECG, EEG, EMG (e.g. it is possible to arrange the image database to store a number of pieces of image data together with related information given thereto, col. 2, lines 57-59. It's understood that one of the formats is needed to store or save an image to image database).

Regarding claims 19 and 20, Shimura does not disclose, for two-dimensional medical

images, two additional JPEG images are generated for ease of browsing using a web browser, and for other image formats, an additional thumbnail image may be generated.

and the two additional JPEG images are of the same size as thumbnail images.

Smirniotopoulos discloses: for two-dimensional medical images, two additional JPEG images are generated for ease of browsing using a web browser, and for other image formats, an additional thumbnail image may be generated (e.g. To simplify the user's process of inputting this information a wide variety of media formats may be accepted. However, the multimedia database system preferably includes appropriate image converters for resizing or formatting the image into one of a selected group of formats for consistency. It is also desirable for the system to have the capability of automatically generating thumbnail images at this point, making subsequent display and browsing more convenient for users, col. 5, lines 16-24). Smirniotopoulos further disclose, the two additional JPEG images are of the same size as thumbnail images (see Figs. 7B, 9A and 9C).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura to include the capability of automatically generating thumbnail images as shown by Smirniotopoulos in order to make subsequent display and browsing more convenient for users.

Regarding claim 21, Shimura discloses an apparatus for retrieving medical images from various sources and in various formats for creating at least one teaching file and research dataset; the apparatus comprising:

a database for storing the at least one teaching file and research dataset in a generated database record (e.g. image database which stores a number of pieces of image data representing a number of images, col. 1, line 67 through col. 2, lines 1-2),

an image retrieval interface configured to directly retrieve medical images from various sources and in different formats (e.g. the image input receives input from a plurality of client terminals (as *sources*) connected to the image input means by way of a network, col. 2, lines 49-52),

an MIRC server configured to provide an MIRC file storage service for the database (e.g. image search system (server) comprises a case database which stores images data, col. 7, lines 52-58),

a graphic user interface for operation on a user's machine to communicate with the MIRC server (col. 2, lines 46-54); and

a web server to service requests from the graphic user interface (e.g. image search system with network means an INTRANET in the hospital, internet, a leased line, and the like, col. 2, lines 47-56).

Shimura does not explicitly disclose the following: for a user's machine automatically anonymizing patient identification data based upon the at least one medical image retrieved from the various sources.

Smirniotopoulos teaches: automatically anonymizing patient identification data when the at least one medical image is retrieved from the various sources (e.g. multiple levels of security and access control schemes may be used where more sensitive information is being stored. Thus, multiple levels of privileges may be supported, such as for an author of a file, a reviewer, an editor, a guest, and system administrator. The level of privileges may also vary based upon the state of the file and the particular information being manipulated. When using multi-level access control, user could be restricted to visitor status with respect to portions of the file. The system may be designed to mask or options within a given process for which a user does not have sufficient privileges, col. 3, lines 37-67 through col. 4, lines 1-7), wherein the patient identification data comprises patient sensitive information that is not revealed publicly (e.g. even though a person acted as both author and editor of a given file, it is possible that after approval he could be restricted to visitor status with respect to certain file access, and may lack even these privileges with respect to portions of the file, such as sensitive patient information, col. 3, lines 55-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura to include a medical image storage and retrieval system as shown by Smirniotopoulos in order to be balanced against the complexity of administering multilevel access (Smirniotopoulos: col. 3, lines 61-63).

Shimura and Smirniotopoulos do not explicitly disclose: wherein the automatic anonymizing of patient identification data includes replacing each item of the patient identification data with an anonymization code, and wherein a relationship between the

anonymization code and the patient identification data is stored securely in a table in the database;

Lei teaches: wherein the automatic anonymizing of patient identification data includes replacing each item of the patient identification data with an anonymization code (e.g. the masking routine obtains masking value from attribute restriction metadata, replaces the data from the attribute with the masking value, integer zero. The modified data is stored in masked result set. The masked result set is then provided to user, §0074, lines 7-9 thru §0075. Wherein, the same data in the masked result set will be returned if the same restricted attributes is requested, §0076), and wherein a relationship between the anonymization code and the patient identification data is stored securely in a table in the database (e.g. The modified data is stored in masked result set, §0074, line 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura and a medical image storage and retrieval system disclosed by Smirniotopoulos to include a masking value as shown by Lei in order to provide a mechanism for implementing access control policies that do not suffer the all-or-nothing limitation of existing row-level access-control policy approaches, Lei: §0013).

Regarding claim 22, Smirniotopoulos further discloses, the database is a relational database for storage of all required information, including: database tables; database indexes; database scripts (e.g. a medical image storage and retrieval system includes a database with relationally linked tables including a disease factoid table, an

image and image caption table, and a patient data table, see abstract); and pointers to the medical images, teaching files and research datasets (Fig. 7B). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura to include relationally linked tables as shown by Smirniotopoulos in order for rapid browsing of the results, along with appropriate links to additional information.

Regarding claim 23, Shimura discloses, wherein the server serves requests received from a user via the graphic user interface on a user's machine; the graphic user interface being for providing access functions and file editing functions (e.g. image search system with network means an INTRANET in the hospital, internet, a leased line, and the like, col. 2, lines 47-56).

6. Claims 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimura, Patent Number 7,374,077, and further in view of Stefanescu et al., Publication Number US 2003/0013951 (hereinafter referred to as “Stefanescu”).

Regarding claims 24-29, Shimura does not disclose the following:

the image server includes at least one selected from the group consisting of: a two dimensional image loader, a three dimensional image loader, a multi-media loader and a telemetry loader.

the two-dimensional image loader is for retrieving two-dimensional still images.

the three-dimensional image loader is for retrieving three-dimensional still images.

the multi-media loader is for retrieving multi-media files (§0043, line 1-3).

the telemetry loader is for retrieving telemetry data (§0043, lines 1-3).

and

the graphic user interface includes a PMIL client as a user interface able to run in a web browser or as a stand alone application on a user's machine, and provides MIRC editing functions

Stefanescu discloses: an image database containing images pre-processed for matching. Atlas matching may be provided, such as in the atlas workspace, in which images may be retrieved that match the position (in one, two, or three reference planes) being viewed in, or selected within, a three-dimensional object displayed within the atlas (§0058, lines 5-11). Wherein, image database is included in the database server (§0043, lines 7-8); and the image database may includes an atlas workspace of user interfaces as an image loader in which images may be retrieved (§0043, lines 9-10 and §0053). Stefanescu further discloses, the graphic user interface includes a PMIL client as a user interface able to run in a web browser or as a stand alone application on a user's machine, and provides MIRC editing functions (§0053-§0054). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the similar image search system disclosed by Shimura to include a user interface for a medical image processing system as shown by Stefanescu to distributed image processing functions in any suitable manner between a client device and one or

more servers..

Regarding claim 30, Shimura further discloses, wherein the server includes an MIRC storage for providing an MIRC file storage service for the database and for the user's machine (e.g. case database 20 in Figure 1).

Regarding claim 31, Shimura further discloses, wherein the MIRC server further includes an MIRC query to provide queries as defined by the MIRC scheme (e.g. a searching means which searches the database for similitude image data representing an image which is similar to an image represented by the input search image, col. 2, lines 6-9).

Regarding claim 32, Shimura further discloses, wherein the at least one teaching file is in accordance with a Medical Imaging Resource Centre standard (col. 5, lines 55-59).

Claims 33-36 are similar to claims 17-20; therefore, claims 33-36 are rejected by the same reasons as discussed above.

Claim 37 has the same functions with claim 1. Therefore, claim 37 is rejected by the same reasons as discussed above.

Response to Arguments

7. Applicant's arguments filed 09/23/2010 have been fully considered but they are not persuasive.

In response to Applicant's argument "Lei fails to disclose *automatic anonymizing of patient identification data includes replacing each item of the patient identification data with an anonymization code; and securely storing a relationship between the anonymization code and the patient identification data in a table in the database* ".

The Examiner respectfully disagrees. Base on the amended claim 1, Examiner has cited particular columns and line numbers in the reference applied to claim 1 above for the convenience of the Applicant; i.e.

automatic anonymizing of patient identification data includes replacing each item of the patient identification data with an anonymization code (e.g. the masking routine obtains masking value from attribute restriction metadata, replaces the data from the attribute with the masking value, integer zero. The modified data is stored in masked result set. The masked result set is then provided to user, §0074, lines 7-9 thru §0075. Wherein, the same data in the masked result set will be returned if the same restricted attributes is requested, §0076); and securely storing a relationship between the anonymization code and the patient identification data in a table in the database (e.g. The modified data is stored in masked result set, §0074, line 10).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Finally, this application is now considered. For the reasons set forth above, the rejections to the claims under 35 USC 103 (a) are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CECILE VO whose telephone number is (571)270-3031. The examiner can normally be reached on Mon - Thu (9AM - 5:00PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tony Mahmoudi can be reached on 571-272-4078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cam Y Truong/
Primary Examiner, Art Unit 2169

/Cecile Vo/
Examiner
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